

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) An isolated polypeptide[s] having antifreeze activity which is[are] obtained from carrots and which have an apparent molecular weight on sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) of 36 kDa [and isoforms or derivatives thereof which still possess antifreeze activity].
2. (Currently amended) An isolated polypeptide[s] having antifreeze activity comprising amino acid sequences [fragments] (A)-(E) [of the amino acid sequence] in the following order within the polypeptide:

(A)LEU-PRO-ASN-LEU-PHE-GLY-LYS (SEQ ID NO: 1)

(B)ILE-PRO-GLU-GLU-ILE-SER-ALA-LEU-LYS (SEQ ID NO: 2)

(D)SER-LEU-ARG-LEU-SER-SER-THR-SER-LEU-SER-GLY-PRO-VAL- PRO-LEU-PHE-PHE-PRO-GLN-LEU-X-LYS (SEQ ID NO: 4)

(C)LEU-THR-X-LEU-ASP-LEU-SER-PHE-ASN-LYS (SEQ ID NO: 3)

(E)X-X-GLY-VAL-ILE-PRO-X-GLN-LEU-SER-THR-LEU-PRO-ASN-LEU-LYS (SEQ ID NO: 5),

wherein X is any amino acid.

3. (Currently amended) An isolated polypeptide[s] having antifreeze activity comprising amino acid sequences [the fragments] (A)-(E) [of claim 2] in the following order within the polypeptide:

(A)LEU-PRO-ASN-LEU-PHE-GLY-LYS (SEQ ID NO: 1) or an amino acid sequence having at least 85% identity thereto;

(B)ILE-PRO-GLU-GLU-ILE-SER-ALA-LEU-LYS (SEQ ID NO: 2) or an amino acid sequence having at least 85% identity thereto;

(D)SER-LEU-ARG-LEU-SER-SER-THR-SER-LEU-SER-GLY-PRO-VAL- PRO-LEU-PHE-PHE-PRO-GLN-LEU-X-LYS (SEQ ID NO: 4) or an amino acid sequence having at least 85% identity thereto;

(C)LEU-THR-X-LEU-ASP-LEU-SER-PHE-ASN-LYS (SEQ ID NO: 3) or an amino acid sequence having at least 85% identity thereto;

(E)X-X-GLY-VAL-ILE-PRO-X-GLN-LEU-SER-THR-LEU-PRO-ASN-LEU-LYS (SEQ ID NO: 5), or an amino acid sequence having at least 85% identity thereto;

wherein X is any amino acid.

4. (Currently amended) An isolated polypeptide[s] having antifreeze activity having an amino acid sequence as represented in SEQ ID NO: 7 [and isoforms and derivatives thereof which still possess antifreeze activity].

5 - 6 (withdrawn)

7. (Previously presented) A method of obtaining a polypeptide according to claim 2, comprising providing cold acclimatised carrot material containing said polypeptide, and purifying said polypeptide from the carrot material.

8 - 10 (withdrawn)

11. (Currently amended) An isolated polypeptide having antifreeze activity that is specifically bound by an antibody which specifically binds to the polypeptide of claim 2.

12. (Previously presented) A food product comprising a polypeptide of claim 2 with the proviso that the food product is not a carrot.

13. (Currently amended) The food product of claim 12 being a frozen confectionery product or a frozen vegetable.

14. (Currently amended) A method of producing a food product comprising an antifreeze polypeptide according to claim 2, comprising the step of

[(a)] adding to the food product a composition comprising said antifreeze polypeptide.

15. (Cancelled)

16 - 17 (withdrawn)

18. (Cancelled)

19. (Previously presented) A food product comprising a polypeptide according to claim 2 with the proviso that the food product is not a carrot containing the polypeptide at naturally occurring levels.

20. (Cancelled)

21. (Currently amended) A food product according to claim 19 [comprising a polypeptide having antifreeze activity comprising fragments (A)-(E) of the amino acid sequence in the following order within the polypeptide:

(A)LEU-PRO-ASN-LEU-PHE-GLY-LYS (SEQ ID NO: 1)

(B)ILE-PRO-GLU-GLU-ILE-SER-ALA-LEU-LYS (SEQ ID NO: 2)

(D)SER-LEU-ARG-LEU-SER-SER-THR-SER-LEU-SER-GLY-PRO-VAL- PRO-LEU-PHE-PHE-PRO-GLN-LEU-X-LYS (SEQ ID NO: 4)

(C)LEU-THR-X-LEU-ASP-LEU-SER-PHE-ASN-LYS (SEQ ID NO: 3)

(E)X-X-GLY-VAL-ILE-PRO-X-GLN-LEU-SER-THR-LEU-PRO-ASN-LEU-LYS (SEQ ID NO: 5),]

wherein the food product is a frozen confectionery product or a frozen vegetable [with the proviso that the food product is not a carrot, wherein X is any amino acid].

22. (Cancelled)

23. (Currently amended) A food product comprising a polypeptide [having antifreeze activity and having an amino acid sequence selected from the sequence as represented in SEQ ID No:7 and isoforms and derivatives thereof which still possess antifreeze activity] according to claim 4 wherein the food product is a frozen confectionery product or a frozen vegetable with the proviso that the food product is not a carrot.

24. (New) An isolated polypeptide having antifreeze activity having an amino acid sequence having at least 95% identity to the amino acid sequence represented in SEQ ID No. 7.
25. (New) A method of obtaining a polypeptide according to claim 1, comprising providing cold acclimatised carrot material containing said polypeptide, and purifying said polypeptide from the carrot material.
26. (New) A food product comprising a polypeptide according to claim 1 with the proviso that the food product is not a carrot containing the polypeptide at naturally occurring levels.
27. (New) A food product comprising a polypeptide according to claim 24 with the proviso that the food product is not a carrot containing the polypeptide at naturally occurring levels.